

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A correlation method comprising the steps of:
sampling a received composite signal comprising transmissions from a plurality of source devices to generate a plurality of original samples in a first predetermined order, wherein the transmissions comprise data stored on each of the plurality of source devices and each source device uses a predetermined portion of its stored data to select a code channel for sending its corresponding transmission;
reordering the original samples in the composite signal into a second predetermined order that is different from the first predetermined order; and
performing a transform on the re-ordered original samples to generate on each of a plurality of output bins an output signal corresponding to a transmission from at least one of the plurality of source devices, wherein each output bin is identified by an index value that directly matches the predetermined portion of stored data used to select the code channel for sending the transmission of the at least one of the plurality of source devices.
2. (previously presented) The method of claim 1 wherein the transform is selected from a group comprising: Fast Hadamard Transform (FHT), Fast Walsh Transforms, and Fast Walsh-Hadamard Transform.
3. (previously presented) The method of claim 1 wherein the received composite signal comprises at least one m-sequence.
4. (previously presented) The method of claim 3 wherein the second predetermined order is based directly on a linear feedback shift register output state sequence.

5. (previously presented) The method of claim 1 wherein the received composite signal comprises at least one specially augmented m-sequence.
6. (previously presented) The method of claim 5 wherein the second predetermined order is based on a generator polynomial of at least one specially augmented m-sequence.
7. (previously presented) The method of claim 1 wherein a dimension of the transform is equal to or less than a number of available channels.
8. (original) The method of claim 1 wherein a dimension of the transform is different than a number of available channels.

9. (currently amended) A device comprising:

a receiver for receiving original samples of a composite signal comprising transmissions from a plurality of source devices, wherein the transmissions comprise data stored on each of the plurality of source devices and each source device uses a predetermined portion of its stored data to select a code phase of a transmitter linear feedback shift register for sending its corresponding transmissions, the transmitter linear feedback shift register having a known state sequence;

~~a linear feedback shift register~~ state machine for generating a sequence of addresses to address a storage medium, wherein the state machine has the same state sequence as the known state sequence for each transmitter linear feedback shift register;

~~the storage~~ a storage medium, coupled to the receiver and the state machine, for storing each of the original samples of the composite signal at a given address according to the sequence of addresses; and

a processor, coupled to the storage medium, for directly performing a transform on at least a portion of the original samples stored in the storage medium to generate on each of a plurality of output bins an output signal corresponding to a transmission from at least one of the plurality of source devices, wherein each output bin is identified by an index value that directly matches the predetermined portion of stored data used to select the code phase for sending the transmission of the at least one of the plurality of source devices.

10. (previously presented) The device of claim 9 wherein the state machine comprises a linear feedback shift register.

11. (original) The device of claim 10 wherein the linear feedback shift register is a Fibonacci sequence generator.

12. (previously presented) The device of claim 9 wherein the state machine is a second storage medium.

13. (currently amended) The device of claim 10 ~~claim 9~~ wherein the linear feedback shift register state machine generates a specially augmented m-sequence.

14. (cancelled)

15. (previously presented) The device of claim 9 wherein the transform is selected from a group comprising: Fast Hadamard Transform (FHT), Fast Walsh Transforms, and Fast Walsh-Hadamard Transform.

16. (original) The device of claim 9 wherein the receiver comprises an analog-to-digital converter.

17. (previously presented) The method of Claim 1, wherein the received composite signal comprises only quasi-orthogonal sequences.

18. (currently amended) The device of Claim 1, wherein each index value and directly matching predetermined portion of stored data are expressed in binary ~~a transmission channel mask value is directly determined by index output values of the transform.~~